

CLAIMS:

1. An assembly comprising
- a display device provided with a pattern of pixels (3) associated with color filters (5B, 5G, 5R), and
 - an illumination system for illuminating the display device,
- 5 - said illumination system comprising a light-emitting panel (11) and at least one light source (16), said light source (16) being associated with the light-emitting panel (11), characterized in that
- the light source (16) comprises at least three light-emitting diodes (16B, 16G, 16R) having different light-emission wavelengths,
 - 10 - said light-emitting diodes (16B, 16G, 16R) being associated with the color filters (5B, 5G, 5R).
2. An assembly as claimed in claim 1, characterized in that
- the light source (16) comprises three light-emitting diodes (16B, 16G, 16R) having different light-emission wavelengths, and
 - 15 - the color filter comprises three color filters (5B, 5G, 5R),
 - the spectral emission of each time one of the three light-emitting diodes (16B; 16G; 16R) being substantially adapted to the spectrum of one of the color filters (5B; 5G; 5R).
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3. An assembly as claimed in claim 1 or 2, characterized in that
- the light source (16) comprises at least one blue light-emitting diode, at least one green light-emitting diode and at least one red light-emitting diode (16B, 16G, 16R),
 - the color filter (5B, 5G, 5R) comprises a blue, a green and a red color filter,
 - 25 and
 - in operation, the blue color filter (5B) predominantly passes light originating from the blue light-emitting diode (16B), the green color filter (5G) predominantly passes light originating from the green light-emitting diode (16G) and the red color filter (5R) predominantly passes light originating from the red light-emitting diode (16R).

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4. An assembly as claimed in claim 1 or 2, characterized in that at least one of the light-emitting diodes (16B, 16G, 16R) is chosen such that the wavelength associated with the spectral maximum of the light-emitting diodes (16B, 16G, 16R) corresponds to the wavelength associated with the spectral maximum of the corresponding color filter (5B, 5G, 5R) in the visible spectrum.

5. An assembly as claimed in claim 4, characterized in that the wavelength λ_{led}^{max} associated with the spectral maximum of at least one of the light-emitting diodes (16B, 16G, 16R) and the wavelength λ_{cf}^{max} associated with the spectral maximum of the corresponding color filter (5B, 5G, 5R) meet the relation: $\left| \lambda_{led}^{max} - \lambda_{cf}^{max} \right| \leq 5 \text{ nm}$.

6. An assembly as claimed in claim 1 or 2, characterized in that the spectral bandwidth (FWHM) of the light-emitting diodes (16B, 16G, 16R) lies in the range between $10 \leq \text{FWHM} \leq 50 \text{ nm}$.

7. An assembly as claimed in claim 6, characterized in that the spectral bandwidth lies in the range between $15 \leq \text{FWHM} \leq 30 \text{ nm}$.

8. An assembly as claimed in claim 1 or 2, characterized in that the intensity of the light emitted by the light-emitting diodes (16B, 16G, 16R) varies in response to the illumination level of a picture to be displayed by the display device.

9. An assembly as claimed in claim 8, characterized in that the intensity of the light emitted by the light-emitting diodes (16B, 16G, 16R) can be adjusted on a frame-to-frame basis.

10. An assembly as claimed in claim 8, characterized in that the intensity of the light emitted by the light-emitting diodes (16B, 16G, 16R) can be adjusted for each color on a frame-to-frame basis.

11. An assembly as claimed in claim 1 or 2, characterized in that each one of the light-emitting diodes (16B, 16G, 16R) has a luminous flux of at least 5 lm.

12. An assembly as claimed in claim 11, characterized in that the light-emitting diodes (16B, 16G, 16R) are mounted on a printed circuit board.

5 13. A display device for use in an assembly as claimed in claim 1 or 2.

14. An illumination system for use in an assembly as claimed in claim 1 or 2.

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